Psilogramma jordana Bethune-Baker—its early stages with a note on stridulation (Lep. Sphingidae)

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Psilogramma jordana Bethune-Baker, Proc. Zool. Soc. Lond., 1905, p. 88.

P. jordana is a large Acherontiine sphingid endemic to Fiji and is probably an offshoot species from the Indo-Australian *Psilogramma menephron* (Cramer). Until recently there were probably less than ten known specimens but the use of MV traps has shown it to be a moderately common species in primary rain forest throughout Viti Levu.

Larvae have never been found, but mated females caught at light can readily be persuaded to lay eggs and the following description of the early stages is based on notes made by H. S. Robinson who made a series of foodplant trials and finally succeeded in rearing *P. jordana* on *Citharexylum spinosum* (L.) producing a series of dwarf adults. Repeated trials showed *Vitex trifolium* L. to be a foodplant which produces adults comparable in size to those caught in MV traps. H.S.R. also believes that *Premna* spp. may provide another "natural" foodplant. The descriptions below are based on larvae feeding on *Citharexylum.*

Ovum: (6 days) Long diameter 2·5 mm., short diameter 2·0 mm.
Apple-green when laid; within 48 hours develops a scarlet germ-line down one side. Ova lacking the scarlet line fail to hatch.

1st instar: (6 days)
Cream-coloured, skin smooth and shiny, no apparent pattern. Caudal horn larger than body, black, rough and clearly bifurcate.

2nd instar: (5 days)
Pale cream-green, skin smooth and shiny, no apparent pattern. Caudal horn very little shorter than body, reddish brown, rough and with small visible bifurcation.

3rd instar: (3 days)
Pale apple green to sage green, some larvae with faint light diagonal markings. Forelegs red-brown. Skin rough. Caudal horn dirty greenish-black, bifurcation still just visible. A very long thin larva at all stages so far. In this instar 25 mm. long, diameter 2 mm., caudal horn 10 mm.

4th instar: (6 days)
Larvae of two forms: dark sage-green and leaf-green. Both forms have two conspicuous diagonal marks running forward and downward on segment behind head and segment before caudal horn. These marks may be dark brown or white in the dark form and are dark brown in the light form. In addition the light form has smaller black marks on each segment. Skin rough, caudal horn very rough. There are a number of very small "warts" on top of and behind the head sometimes bright yellow, sometimes green or brown. They look like small fungus growths. "Back veins of leaf" camouflage very good indeed. Dark head and prolegs.

Instar 4A: (an optional instar, 2-3 days)
Colouring same as in instar 4 but distinguishable as larva has brown shiny "warts" on segment behind head and on anal segment. Dis

tinguished from instar 5 by difference in colour. Considerably larger than instar 4 and, on changing to instar 5, initially far larger with a larger head than larvae which have passed directly to instar 5 from instar 4.

Instar 5: (10 days—15 in the case of a larva from instar 4A)

Conspicuous shiny brown "warts" as big as a pins head on anal segment and segment behind head. Underside powder-blue. On sides, diagonal forward-sloping bands of lilac, white and bright leaf green. On back, a wide band of pinkish-brown, narrowing between segments, very dark in some forms and very light in others. Both instar 4 and instar 4A seem to pass into this form.

Pupa: (26 days)

Larvae burrowed in compressed tissue to pupate. When due for pupation larvae turn rose-pink on the back and sides, blue-green below. Emergence appears to be always at about 8 p.m.

Larvae passing through six instars have always turned out to be very large females. Small females from five-instar larvae occur as well and the large: small ratio of bred females irrespective of foodplant appears to be 50/50. Females caught in light traps are predominantly large and large females in captivity appear to be far more active than small females. It might reasonably be supposed that the large female possesses much larger food reserves than her smaller sister and hence is more readily able to undertake dispersal flights after mating, appearing in light traps in larger numbers than the relatively sedentary small females. Thus the large female seems to be the agent responsible for dispersal. However, until more data is available, one may only offer this hypothesis tentatively.

Stridulation:

On several occasions male *P. jordana* have been observed making curious abdominal movements and emitting a high-pitched rasping noise. The usual circumstance in which this has been observed is when a male has settled on a wall or a plant near an MV light and is disturbed in the early morning. Movement entails the retraction and extrusion of the valves from the terminal abdominal segment and stridulation appears to be produced by contact of the ventral edges of the valves with the edge of the terminal sternite. The purpose of this behaviour is a matter of conjecture; the colouring of *P jordana* is quite possibly aposematic (forewings mottled grey, hindwings rich brownish red) but stridulation is not associated with any form of hindwing display. It is interesting to note that stridulation is similar to that observed in *Psilogramma menephron* by G. C. Varley and H. S. Robinson in Malaya.

Lepidoptera from the Maltese Islands

By C. De Lucca

My last contributions to the study of the Maltese Lepidoptera appeared in 1956 (*Entomologist*, **89**: 253-256, October 1956) and 1965 (*Rapports et Procès-verbaux de reunions de la C.I.E.S. M.M.*, Vol. 18 (2). Monaco 1965). Owing to rather heavy duties I was not able to do more research in this field since that itme. Collecting continued to be done, however, and although it was carried out in a rather sporadic manner, it has yielded a good number of Heterocera and Microlepidoptera. I was recently able to go over the specimens and as work on them progressed